

IN THE SPECIFICATION

At page 78, line 12, delete "95".

At page 88, line 18, replace "Cander" with

-- Cancer --.

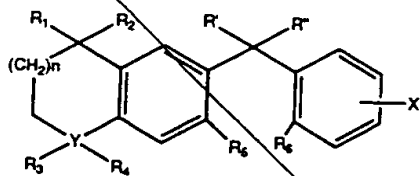
IN THE CLAIMS

In claim 4, as amended by Preliminary Amendment filed November 4, 1994, in the definition of R'" and R"', replace "alkyl, amino" with -- alkyl amino --.

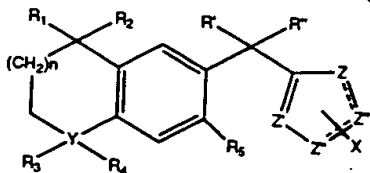
Please amend claims 14-15, 18-19, and 25-32 as follows:

14. (Amended) A pharmaceutical composition comprising in a pharmaceutically acceptable vehicle suitable for enteral, parenteral, or topical administration, one or more ligands [of claim 2] which modulate a process selectively mediated by Retinoid X Receptors in preference to Retinoic Acid Receptors.

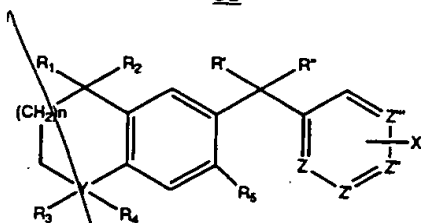
15. (Amended) A pharmaceutical composition comprising in a pharmaceutically acceptable vehicle suitable for enteral, parenteral, or topical administration, one or more compounds [of claim 4] having the formula:



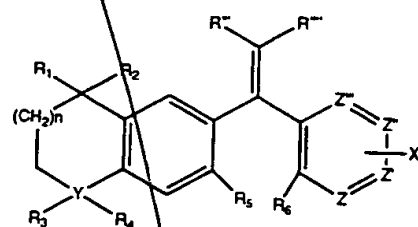
or



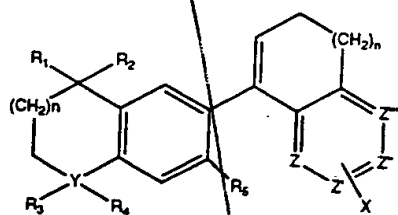
OR



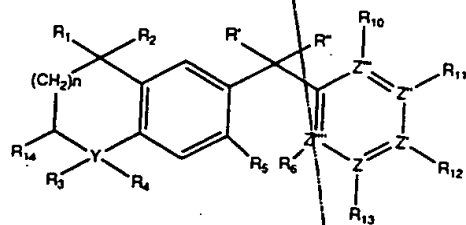
OR



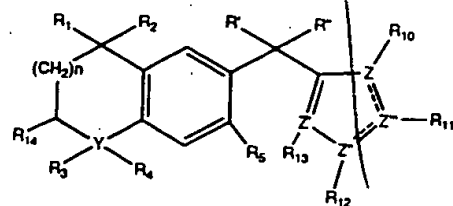
OR



OR



OR



B-
contd

wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHOH, CO, SO, or SO₂;

R' and R'' represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R'' taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, R₁₇N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R''' and R'''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R''' and R'''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)₂CF₃, but R₅ cannot be hydrogen if together R₆, R₁₀, R₁₁, R₁₂ and R₁₃ are all hydrogen, Z, Z', Z'', Z''', and Z'''' are all carbon, and R' and R'' represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R'' taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or

(CF), CF, and exist only if the Z, Z', Z'', Z''', or Z''' from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z''' from which it originates is N, and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-fluorophenyl, or q-iodophenyl, where q=2-4;

R₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR, and SR, substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, acyl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR, COSR, CONHR, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z'', Z''' and Z'''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to

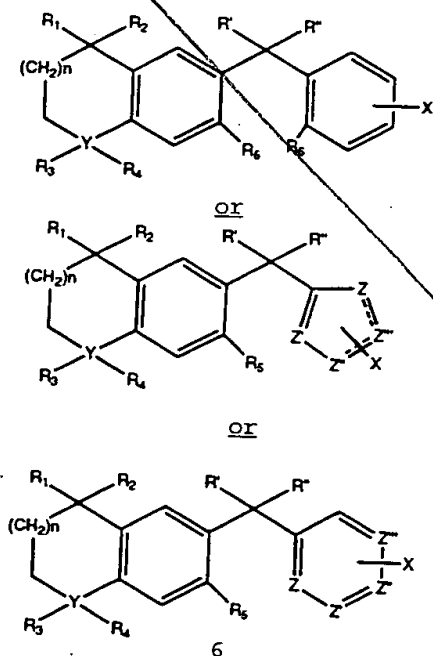
another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

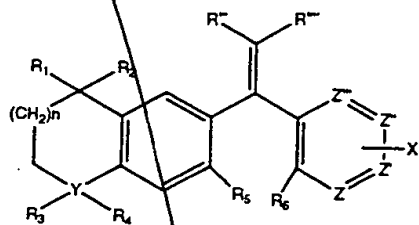
the dashed lines in the second and seventh structures shown depict optional double bonds.

18. (Amended) A method for modulating a process mediated by one or more Retinoid X Receptors, said method comprising causing said process to be conducted in the presence of at least one ligand [as set forth in claim 2] which modulates a process selectively mediated by Retinoid X Receptors in preference to Retinoic Acid Receptors.

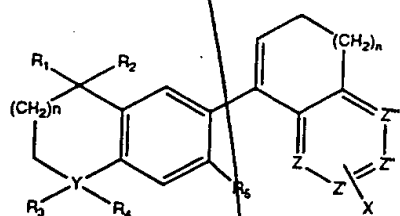
19. (Amended) A method for modulating a process mediated by one or more Retinoid X Receptors, said method comprising causing said process to be conducted in the presence of at least one compound [as set forth in claim 4] having the formula:



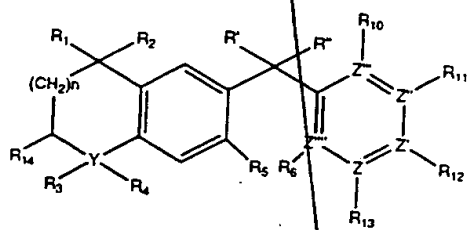
OR



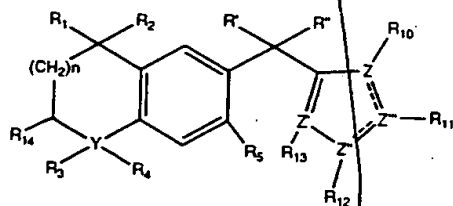
OR



OR



OR



wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHOH, CO, SO, or SO₂;

R' and R'' represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R'' taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, R₁₇N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R''' and R''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R''' and R''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)_nCF₃, but R₅ cannot be hydrogen if together R₆, R₁₀, R₁₁, R₁₂ and R₁₃ are all hydrogen, Z, Z', Z'', Z''', and Z''' are all carbon, and R' and R'' represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R'' taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or

(CF), CF₃, and exist only if the Z, Z', Z'', Z''', or Z''' from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z''' from which it originates is N, and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-fluorophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR, and SR, substituted alkenes), R₉ alkyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, acyl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₉, COSR₉, CONHR₉, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₉, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z'', Z''' and Z''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to

another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

21. (Amended) A method according to claim 19 wherein said process is the in vivo modulation of lipid metabolism, in vivo modulation of skin-related processes, in vivo modulation of autoimmune diseases, in vivo modulation of fatty acid metabolism, in vivo modulation of malignant cell development, [or] in vivo modulation of premalignant lesions, or in vivo modulation of programmed cell death.

22²⁵. (Amended) A method for modulating a process mediated by one or more Retinoid X Receptors, said method comprising causing said process to be conducted in the presence of at least one compound [as set forth in claim 6] selected from the group consisting of 4-[(3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-2-naphthyl)carbonyl]benzoic acid,

4-[1-(3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-2-naphthyl)ethenyl]benzoic acid,

4-[1-(3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-2-naphthyl)cyclopropyl]benzoic acid,

4-[1-(3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-2-naphthyl)ethenyl]benzenetetrazole,

2-[1-(5,5,8,8-tetramethyl-5,6,7,8-tetrahydro-2-naphthyl)ethenyl]pyridine-5-carboxylic acid,

2-[1-(3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-2-naphthyl)ethenyl]pyridine-5-carboxylic acid,

ethyl 2-[1-(3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-2-naphthyl)ethenyl]pyridine-5-carboxylate,

5-[1-3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-2-naphthyl)ethenyl]pyridine-2-carboxylic acid,

2-[1-(3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-2-naphthyl)cyclopropyl]pyridine-5-carboxylic acid,

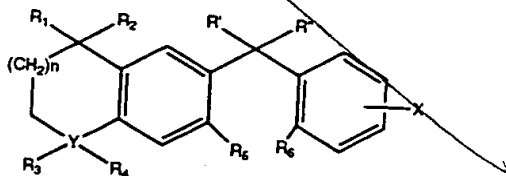
methyl 2-[1-(3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-2-naphthyl)cyclopropyl]pyridine-5-carboxylate, and

4-[1-(3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-2-naphthyl)ethenyl]-N-(4-hydroxyphenyl)benzamide.

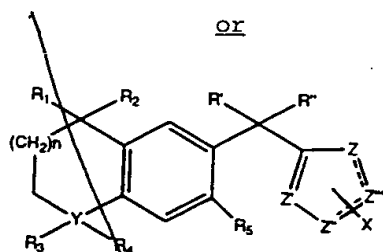
²³ 26. (Amended) A method for modulating a process mediated by one or more Retinoid X Receptors, said method comprising administering to a mammalian subject an amount, effective to modulate said process mediated by said one or more Retinoid X Receptors, of one or more ligands [of claim 2] which modulate a process selectively mediated by Retinoid X Receptors in preference to Retinoid Acid Receptors.

Box C5
contd

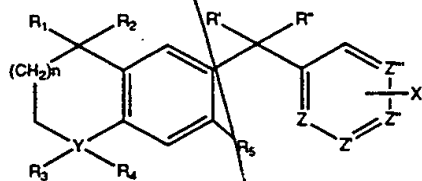
27. (Amended) A method for modulating a process mediated by one or more Retinoid X Receptors, said method comprising administering to a mammalian subject an amount, effective to modulate said process mediated by said one or more Retinoid X Receptors, of one or more compounds [of claim 4] having the formula:



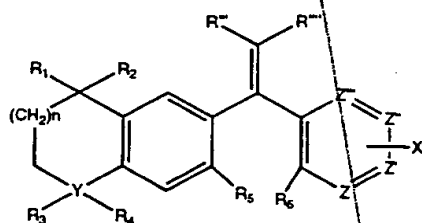
or



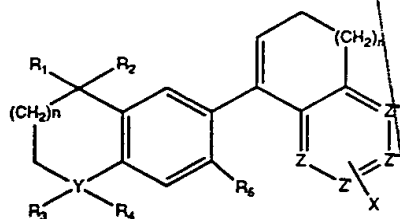
or



or

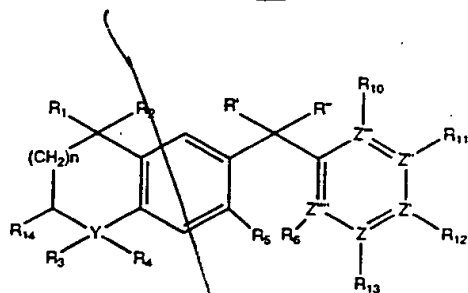


or

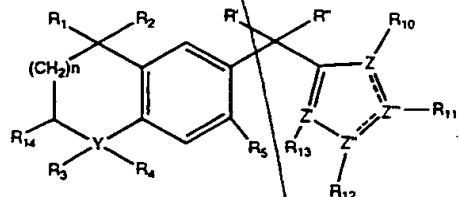


B4
contd.

or



or



wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHOH, CO, SO, or SO₂;

R' and R'' represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R'' taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, R₁₇N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R'" and R''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R'" and R''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)₂CF₃, but R₅ cannot be hydrogen if together R₆, R₁₀, R₁₁, R₁₂ and R₁₃ are all hydrogen, Z, Z', Z'', Z''', and Z''' are all carbon, and R' and R'' represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R'' taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)₂CF₃, and exist only if the Z, Z', Z'', Z''', or Z''' from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z''' from which it originates is N, and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-fluorophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR₇ and SR₇ substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR₇ and SR₇ substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR₇ and SR₇ substituted alkenes), alkyl amines

(including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, acryl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₂, COSR₂, CONHR₂, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₂, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

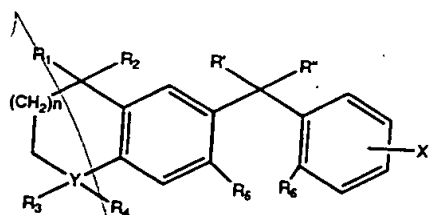
Z, Z', Z'', Z''' and Z''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

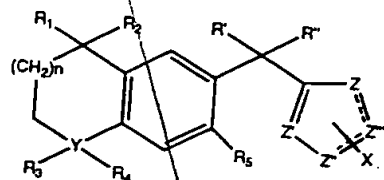
the dashed lines in the second and seventh structures shown depict optional double bonds.

B4 control
²⁵ 28. (Amended) A method for treating a mammalian subject requiring Retinoid X Receptor therapy comprising administering to such subject a pharmaceutically effective amount of one or more ligands [as set forth in claim 2] which modulates a process selectively mediated by Retinoid X Receptors in preference to Retinoic Acid Receptors.

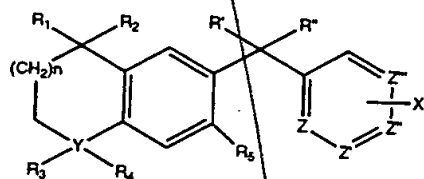
plc 6
29. (Amended) A method for treating a mammalian subject requiring Retinoid X Receptor therapy comprising administering to such subject a pharmaceutically effective amount of one or more compounds [as set forth in claim 4] having the formula:



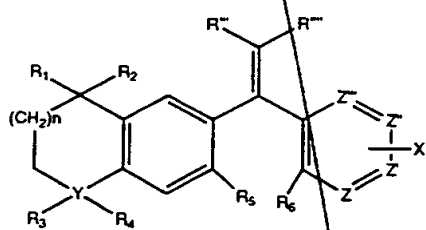
or



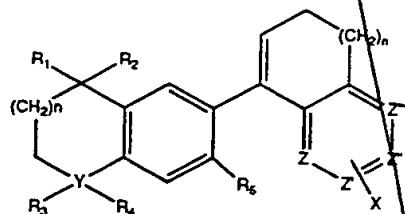
or



or

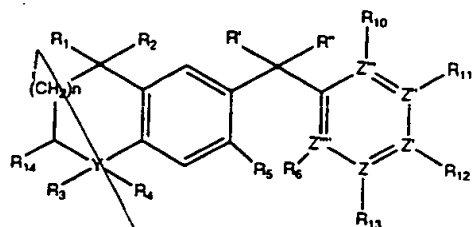


or

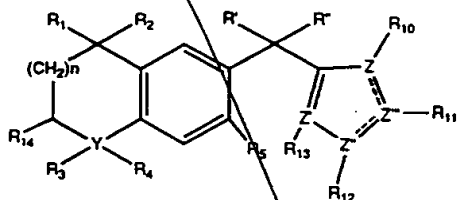


or

64
contd



OR



wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHOH, CO, SO, or SO₂;

R' and R'' represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R'' taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, R₁₇N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R''' and R''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

B₄
contd.

or R'" and R''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)_nCF₃, but R₅ cannot be hydrogen if together R₆, R₁₀, R₁₁, R₁₂ and R₁₃ are all hydrogen, Z, Z', Z'', Z''', and Z''' are all carbon, and R' and R'' represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R'' taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)_nCF₃, and exist only if the Z, Z', Z'', Z''', or Z''' from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z''' from which it originates is N, and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-fluorophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR₇ and SR₇ substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR₇ and SR₇ substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR₇ and SR₇ substituted alkenes), alkyl amines (including halogen, acyl, OR₇ and SR₇ substituted alkyls), and

alkenyl amines (including halogen, acryl, OR, and SR, substituted alkenes);

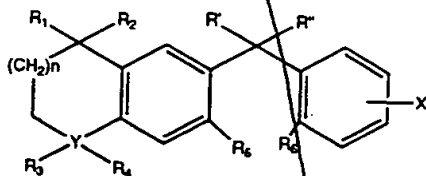
X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₁, COSR₁, CONHR₁, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring; provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₁, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z'', Z''' and Z''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

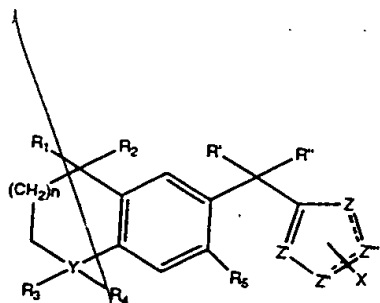
n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

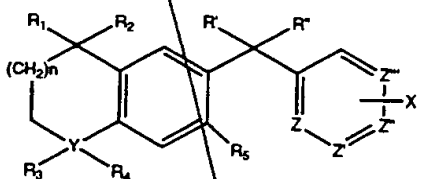
30. (Amended) A method for increasing plasma concentrations of high density lipoprotein in a mammalian subject comprising administering to such subject a pharmaceutically effective amount of one or more compounds [as set forth in claim 4] having the formula:



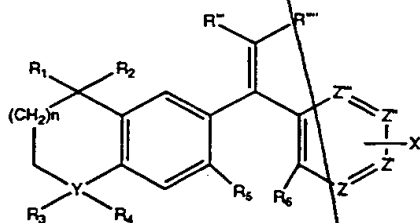
OR



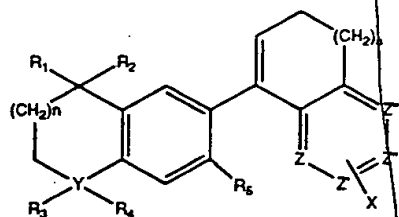
OR



OR

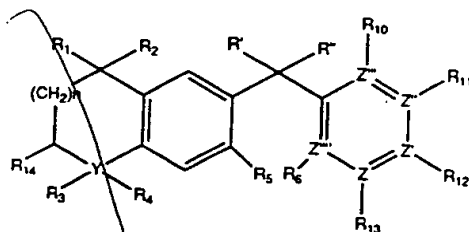


OR

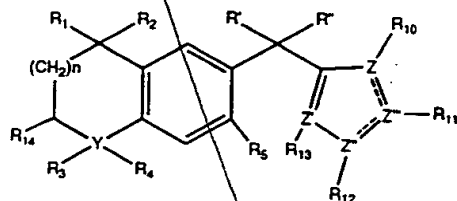


B4
contd

or



or



wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHOH, CO, SO, or SO₂;

R' and R'' represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R'' taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, R₁₇N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy,

cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R'" and R''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R'" and R''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)₂CF₃, but R₅ cannot be hydrogen if together R₆, R₁₀, R₁₁, R₁₂ and R₁₃ are all hydrogen, Z, Z', Z'', and Z''' are all carbon, and R' and R'' represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R'' taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)₂CF₃, and exist only if the Z, Z', Z'', Z''', or Z''' from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z''' from which it originates is N, and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-fluorophenyl, or q-iodophenyl where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR₇ and SR₇ substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR₇

B4
contd

and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, acyl, OR, and SR, substituted alkenes);

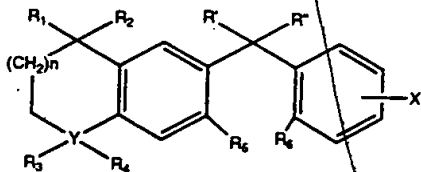
X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR, COSR, CONHR, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z'', Z''' and Z''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

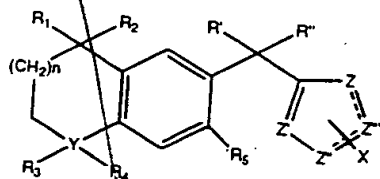
the dashed lines in the second and seventh structures shown depict optional double bonds.

31. (Amended) A method for determining the presence of one or more Retinoid X Receptors comprising combining a compound [of claim 4] as set forth below with a sample containing one or more unknown receptors and determining whether said compound binds to any receptor in said sample, said compound having the formula:

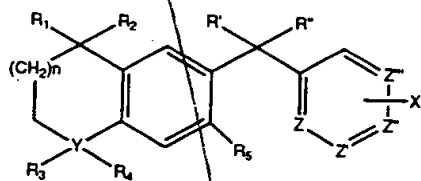


B4
control

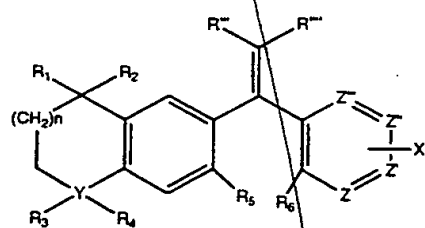
OR



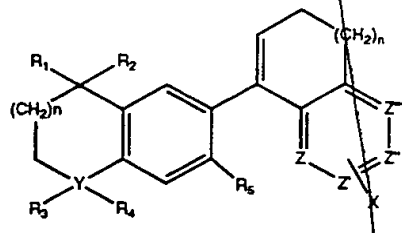
OR



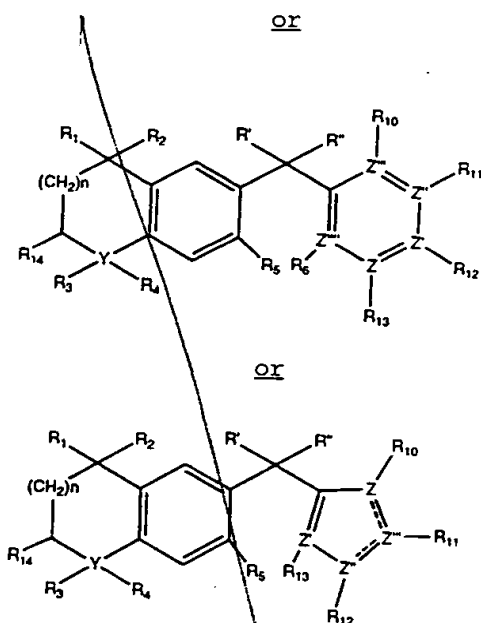
OR



OR



B4
contd



wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHOH, CO, SO, or SO₂;

R' and R'' represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino.

or R' or R'' taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, R₁₇N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy,

cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R'" and R''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R'" and R''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)₂CF₃, but R₅ cannot be hydrogen if together R₆, R₁₀, R₁₁, R₁₂ and R₁₃ are all hydrogen, Z, Z', Z'', and Z''' are all carbon, and R' and R'' represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R'' taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)₂CF₃, and exist only if the Z, Z', Z'', Z''', or Z''' from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z''' from which it originates is N, and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-fluorophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR₇ and SR₇ substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR₇

and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, acyl, OR, and SR, substituted alkenes);

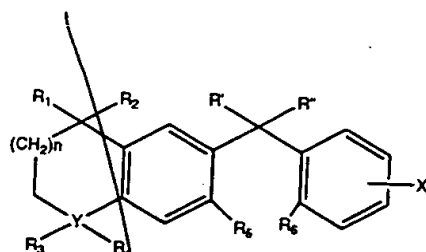
X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₉, COSR₉, CONHR₉, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₉, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z'', Z''' and Z''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

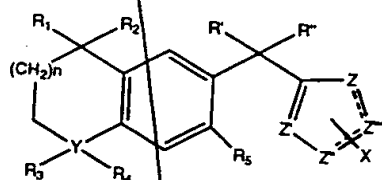
n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

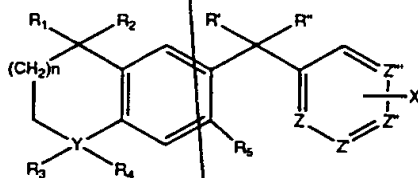
32. (Amended) A method of purifying Retinoid X Receptors comprising combining a compound as set forth [in claim 4] below with a sample containing one or more said Retinoid X Receptors, allowing said compound to bind with Retinoid X Receptors, and separating out the bound combination of said compound and Retinoid X Receptor, said compound having the formula:



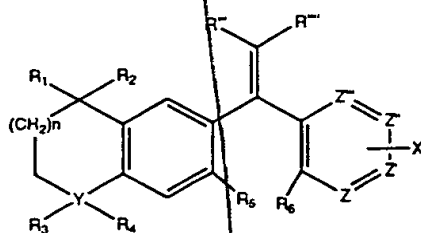
OR



OR

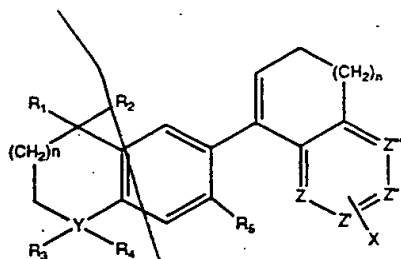


OR

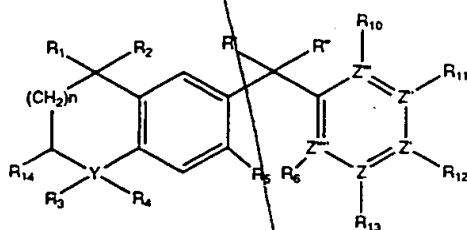


84
contd

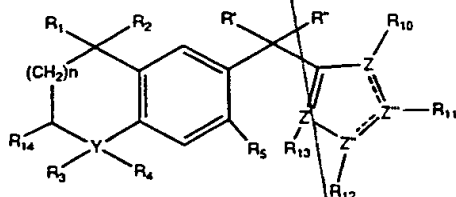
or



or



or



B4 contd
wherein

R₁ and R₂, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO₂, or a pharmaceutically acceptable salt;

R₃ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R₄ represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R₄ does not exist if Y is N, and neither R₃ or R₄ exist if Y is S, O, CHOH, CO, SO, or SO₂;

R' and R'' represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R'' taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, (R₇R₈)N-N=, R₁₇O-N=, R₁₇N=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R''' and R'''' represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R''' and R'''' taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R₅ represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈, or (CF)₃CF₃, but R₅ cannot be hydrogen if together R₆, R₁₀, R₁₁, R₁₂ and R₁₃ are all hydrogen, Z, Z', Z'', and Z''' are all carbon, and R' and R'' represent H, OH, C₁-C₄ alkoxy or C₁-C₄ acyloxy or R' and R'' taken together form an oxo, methano, or hydroxyimino group;

R₆, R₁₀, R₁₁, R₁₂, R₁₃ each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR₇, SR₇, NR₇R₈ or (CF)₃CF₃, and exist only if the Z, Z', Z'', Z''', or Z'''' from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z'', Z''', or Z'''' from which it originates is N, and where one of R₆, R₁₀, R₁₁, R₁₂ or R₁₃ is X;

R₇ represents hydrogen or a lower alkyl having 1-6 carbons;

R₈ represents hydrogen or a lower alkyl having 1-6 carbons;

R₉ represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-fluorophenyl, or q-iodophenyl, where q=2-4;

R₁₄ represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R₁₇ represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR, and SR, substituted alkenes), R₉, alkyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR, and SR, substituted alkenes), alkyl amines (including halogen, acyl, OR, and SR, substituted alkyls), and alkenyl amines (including halogen, acyl, OR, and SR, substituted alkenes);

X is COOH, tetrazole, PO₃H, SO₃H, CHO, CH₂OH, CONH₂, COSH, COOR₉, COSR₉, CONHR₉, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH₂OH, COHN₂, COOR₉, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z'', Z''' and Z''', each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

40. (Amended) The method of claim 38 wherein said process is the *in vivo* modulation of lipid metabolism, *in vivo* modulation of skin-related processes, *in vivo* modulation of autoimmune diseases, *in vivo* modulation of fatty acid metabolism, *in vivo* modulation of malignant cell development, *in vivo* modulation of premalignant lesions, or *in vivo* modulation of programmed cell death.

Please add the following new claims:

45. A therapeutic process comprising administering to a subject a compound which in a co-transfection assay is at least three times more potent an activator of a Retinoid X Receptor than a Retinoic Acid Receptor.

46. A therapeutic process according to claim 45, wherein said compound is at least five times more potent an activator of a Retinoid X Receptor than a Retinoic Acid Receptor.

47. A therapeutic process according to claim 45, wherein said compound is useful to modulate *in vivo* lipid metabolism, *in vivo* skin-related processes, *in vivo* autoimmune diseases, *in vivo* fatty acid metabolism, *in vivo* malignant cell development, *in vivo* premalignant lesions, or *in vivo* programmed cell death.

48. A therapeutic process according to claim 45, wherein said compound is useful to treat dermatological conditions, keratinization disorders, proliferative disorders, differentiation disorders, comedolytic activity, cancer,

inflammatory diseases, cardiovascular disorders, apolipoprotein A1 metabolism, or plasma HDL levels.

49. A therapeutic process according to claim 45, wherein said compound is useful to treat acne, psoriasis, aging, wrinkling, acute promyelocytic leukemia, mammary cancer, prostate cancer, lung cancer, cancers of the aerodigestive pathway, skin cancer, bladder cancer, sarcomas, or leukoplakias.

50. A compound which is an activator of a Retinoid X Receptor in a co-transfection assay, which compound is at least three times more potent an activator of the Retinoid X Receptor than a Retinoic Acid Receptor in the co-transaction assay.

51. A compound according to claim 50, wherein said compound is at least five times more potent an activator of a Retinoid X Receptor than a Retinoic Acid Receptor.

52. A compound which modulates a process mediated by a Retinoid X Receptor, wherein said compound selectively activates one or more Retinoid X Receptors in preference to Retinoic Acid Receptors.

53. A pharmaceutical composition comprising a compound which is at least three times more potent an activator of a Retinoid X Receptor than a Retinoic Acid Receptor in a co-transfection assay in combination with a pharmaceutically acceptable vehicle.

54. A pharmaceutical composition comprising a compound which modulates a process mediated by a Retinoid X Receptor in

combination with a pharmaceutically acceptable vehicle, wherein said compound selectively activates one or more Retinoid X Receptors in preference to Retinoic Acid Receptors.

55. A method for modulating a process mediated by one or more Retinoid X Receptors, said method comprising causing said process to be conducted in the presence of at least one compound which is at least three times more potent an activator of one or more of the Retinoid X Receptors than one or more Retinoic Acid Receptors in a co-transfection assay.

56. A method for modulating a process according to claim 55, wherein the process is the *in vivo* modulation of lipid metabolism, skin-related processes, autoimmune diseases, fatty acid metabolism, malignant cell development, premalignant lesions, or programmed cell death.

57. A method for treating a mammalian subject requiring Retinoid X Receptor therapy comprising administering to such a subject a pharmaceutically effective amount of a compound which is at least three times more potent an activator of a Retinoid X Receptor than a Retinoic Acid Receptor in a co-transfection assay.

58. A method for treating a mammalian subject according to claim 57, wherein the Retinoid X Receptor therapy comprises the *in vivo* modulation of lipid metabolism, skin-related processes, auto-immune diseases, fatty acid metabolism, malignant cell development, premalignant lesions, or programmed cell death.